Methodology of developing algorithmic skills through mathematical images in preschool children

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ABSTRACT

This article focuses on the methods, problems and solutions for the development of methods for improving the mathematical knowledge and algorithmic skills of preschool children. It is aimed at paying attention to the changing characteristics of the properties of the algorithm, taking into account the age, and to ensure that children act on the basis of algorithmic skills in lifestyle and training.
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1. Introduction

In preschool children, it is advisable to develop mathematical concepts through the simplest and most straightforward subjects. According to Z.I.Kalmakova, the most reliable indicator of the formation of mathematical concepts in a child is his education, that is, in the general rules of the child's acquisition of knowledge.

The basis of education, its main organizer, is the generalization of intellectual activity, which highly determines the other parameters of education.

The depth of thinking is characterized by mathematical accuracy and the ability to penetrate into the essence of the problem, to be able to distinguish the primary from the secondary.

Elasticity is characterized by the ability to easily move from one mode of activity to another, to change the mode of activity in accordance with the purpose.

The activity of thinking is the continuum of effort to solve a problem.

Critical thinking is the ability to evaluate whether the solution to a problem is chosen correctly, the effectiveness of the method of action, the correctness of the result, the ability to keep the activity at a constant level.

Rational thinking is characterized by the ability to compare ways of working by setting different parameters, to find ways to solve a problem in less time.

2. Main part

The originality of thinking is to solve a problem or a given problem in a wonderful, different way from other methods. It is often manifested as a result of the depth and depth of thinking.

The independence of thinking is expressed in the ability to find a way to solve problems independently, without assistance, the ability to see the intermediate and final results of activities, the independence, freedom and validity of opinions.

Intuition plays an important role in shaping mathematical concepts. Here intuition is a sudden thought, a successful idea.

Algorithm in the broadest sense refers not only to a computer term, but also to anything that can follow the instructions given in it. An algorithm is a specific program, a set of rules, that is used to solve a specific type of problem.

In preschoolers, mathematical concepts develop from simple to complex. Classes for students of this period are organized with simple, clear parts of mathematical concepts. The use of environmental objects and events and activities in explaining the concept of algorithm to children is an effective type of activity and solution to achieve the expected result in the lesson.

You can rely on the properties of the algorithm to perform certain tasks.

Basic properties of the algorithm. The algorithm has 5 main properties:

Discretion. The essence of this property is that it is always possible to divide algorithms into finite steps.

This property ensures that not only a certain mathematical task, but also any part of the lifestyle of children is properly organized. Comprehensibility The instructions given to the pupil must be clear to him, otherwise the child simply will not be able to perform the action. In addition, the child may not be able to perform any action.

There is a set of instructions or commands that each child can follow, which is called the pupil's system of instructions. This means that every instruction given to a child must belong to the system of instructions of the pupil. It is important that we be able to articulate the instructions in a way that is relevant to the learner's system of instructions. For example, a small group of pupils can distinguish simple geometric shapes, but complex numbers cannot perform arithmetic operations on top. Therefore, special attention should be paid to the comprehensibility of the task given by the educator. In order for a child to complete a given and assigned task, he or she must first consciously analyze it and make sure that he or she is free in accordance with his or her age characteristics.

Pupils rely on a complex psychological approach in each process. They must first be convinced to achieve the set goal and the given task. Children perform the given tasks during the lessons based on the intelligibility of the algorithm.

Accuracy.

The instructions given to the pupil should be clear. Because inaccuracies in the instructions do not lead to the achievement of the intended purpose. Thoughts and feedback that seem easy to adults can be difficult for young children, and vague instructions can put children in a difficult position.

It is also important in what sequence the instructions are followed. This means that the instructions must be clear and executed only in the order specified in the algorithm.

Each type of activity organized in preschool education institutions should provide an opportunity to acquire different knowledge, even if it is focused on one task. Giving children algorithm-based tasks develops children's ability to work in an orderly manner in the first place. In the formation of the child as a person, he develops the ability to systematically plan each goal.

Popularity.

Each algorithm must be relevant to all issues of the same type, depending on the content. That is, the algorithm must be able to solve any problem of the same type, regardless of the initial data in the problem. For example, in the development of mathematical knowledge, the method of sequencing arithmetic operations in large groups is required to be proportional to the sequence of training of children in large groups. It is in this case that mathematical knowledge and algorithmic knowledge develop from simplicity to complexity and manifest themselves in the nature of mass.

Efficiency. Each algorithm must give a result after a limited number of steps. Even if there is a lot of work to be done, it should still lead to results. The result is also the determination that the problem posed after a finite step has no solution. If the process in question continues indefinitely and does not give results, we can not call it an algorithm. Algorithmic processes have their results in any case.

Conclusion

Algorithmic skills are also developed in preschool children in the process of preparation for school, from the simplest activities to the period of the pre-school group, in the simplest form under the supervision of a tutor. Preschoolers will be introduced to the simplest versions of mathematical concepts. In the development of algorithmic skills, first of all, the control of the tutor in small groups is taken into account. It is advisable to rely on the properties of the algorithm during each session. During algorithmic knowledge, children are clearly directed to the goal. They can choose the right path for a particular type of activity and analyze in advance the results of achieving the goal. Algorithmic skills can be easily developed in other types of training in addition to mathematics.

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